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(54) **METHODS AND APPARATUS FOR MITIGATION OF RADIO-FREQUENCY IMPAIRMENTS IN WIRELESS NETWORK COMMUNICATION**

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(57) **ABSTRACT**

Systems and techniques for in-phase/quadrature estimation are described. As data frames are received at a wireless networking direct-conversion receiver, preambles of the data frames are examined to identify frequency-independent subcarriers. Preamble-based estimation is used to estimate in-phase/quadrature imbalance for frequency-independent subcarriers and blind estimation is used to estimate in-phase/quadrature imbalance for frequency-dependent subcarriers. The estimation may be performed continuously and refined as new frames are received. At appropriate intervals, compensation is performed using current imbalance estimates.